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Original Research Article

Impact of COVID-19 Pandemic on academic activities, clinical training, and occupational expectations of postgraduate students of prosthodontic departments in Kerala –A cross-sectional study

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ABSTRACT

The first Covid case in India was reported in Kerala. Kerala's attempt to contain Covid 19 in the initial period was praised nationally and internationally. This study is a humble attempt to study the impacts of the pandemic outbreak on academic activities, clinical training, and occupational expectations of prosthodontics postgraduate students in Kerala during the period of October 2020 to December 2020. A set of 20 close-ended questions were formulated. The questionnaire was circulated online using google forms among the postgraduate students pursuing prosthodontics in dental colleges in Kerala. Prosthodontic Postgraduate students of dental colleges in Kerala who were willing to participate in the study and gave informed consent were included in the study. Even though Prosthodontic postgraduate students appeared comfortable with technology adaptations for a didactic curriculum, internet connectivity issues were a major hindrance to the smooth conduction of online academic activities. The dental fraternity played a crucial role in the early detection of positive cases and was instrumental in flattening the covid curve in Kerala. The pandemic and the consequent movement restrictions affected the research activities and thesis preparation of postgraduate students. A sufficient supply of good quality PPE kits, rapid antigen screening kits in the department itself, and strict adherence to prudent sterilization and infection control measures were considered crucial in ensuring occupational safety and good patient care in prosthodontic departments during the pandemic waves. The unprecedented pandemic was a learning curve for all the stakeholders in the dental stream. Necessary measures should be taken by the authorities to equip dental colleges so that pandemics should not affect the dental education scenario in the future.

1. Introduction

The highly infectious SARS-CoV-2, a novel Coronavirus that was first reported in Wuhan China has led to a global pandemic.[1] All healthcare professionals, including dental healthcare providers, are at higher risk of coming into close contact with COVID-19 patients than the public. The COVID-19 pandemic has suddenly changed the whole education scenario as well. Dental education is no exception.[2,3] Most Prosthodontic treatment procedures create aerosol which can cause the spreading of the disease.[4] The majority of patients who need prosthodontic treatment fall in the geriatric category which is a high-risk group.[5] Hence the pandemic situation necessitates the restriction of such treatment procedures to control the spread of the disease.

The first Covid case in India was reported in Kerala. Kerala's attempt to contain Covid 19 in the initial period was praised nationally and internationally.[6,7] This study

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was a humble attempt to address the possible impacts of this pandemic outbreak on academic activities, clinical training, and occupational expectations of prosthodontics postgraduate students in Kerala from October 2020 to December 2020.

2. Materials and Methods

A set of 20 close-ended questions were formulated. A questionnaire was given to 4 subject experts to get its content validated. A pilot study was conducted among the prosthodontics postgraduate students of Trivandrum District. The questionnaire was circulated online using google forms among the postgraduate students pursuing prosthodontics in dental colleges in Kerala. Prosthodontic Postgraduate students of dental colleges in Kerala who were willing to participate in the study and gave informed consent were included in the study. Anonymity and confidentiality were assured. Data was collected using a structured questionnaire in google forms after obtaining ethical clearance from the institutional ethical review board.

3. Results

A total of 124 prosthodontics postgraduate students responded to the online questionnaire yielding a response rate of 82%. The study sample was composed of 95 (81.5%) female and 29 (18.5%) male students.23.4% (29) of the participants were students from Government Dental Colleges and 76.6% (95) of the students were from self-financing dental colleges.(Figures 1 and 2)

1. Almost 60.5% of the students preferred conducting seminars, journal clubs, case discussions in Google meet, or similar online platforms to attending webinars or doing self-study as an effective method of continuing dental education during the pandemic periods. About 46% of the study population believed the best method of continuing academic activities like seminars and journal clubs during the pandemic period was using Google meet or similar online platforms while 45.2% of the sample preferred PowerPoint projection in an open classroom and attending faculty/students maintain social distancing and wearing masks. 6.5% of the students suggested uploading PowerPoints with audio recordings as the best method. (Figure 3)
2. For 59% of the study participants internet connectivity problem was a definite hindrance to carrying out effective academic activities. For 31.5%, internet connectivity problems affected effective knowledge transfer to some extent. (Figure 4)32.3% of the students rated the currently followed method in their college for conducting seminars and journal clubs and case discussions as equally effective as the conventional method used before the pandemic, while 29.8% of the students rated it as 75% effective while 25.5% rated only 50% efficacy and 12 .5 % of the participants believed that currently followed method efficacy is only 25% of the conventional face to face communication methods
3. The pandemic badly affected the research activities and thesis preparation of 36.3% of students, affected the research work of 54.8% of students, and made it impossible for 1.6% of students. While 7.3% reported that the pandemic did not affect their research activities and thesis preparation. (Figure 5)
4. About 94.4% of the students agreed that dentists irrespective of their specialty plays an active role as COVID-19 warrior. 27.4% of the students were assigned to COVID-19-related duties like swab collection. In this 79.3% of government college students had COVID-related duties, while 11.6% of students at self-financing colleges were assigned COVID-related duties ($p<0.01$). (Figure 6)
5. According to the survey,54.8% of the students reported being properly trained in donning and doffing PPE. 96.6% of the students in Government Dental colleges received proper training in donning and doffing PPE while only 42.1% of students at the self-financing colleges received proper training in donning and doffing PPE. ($p<0.01$) (Figure 7).42.9% of the students reported that treatment procedures done in their colleges during the study period included emergency procedures, denture repairs, MFP, and a limited number of RPD and complete dentures. 33.6% reported that RPD, complete denture, and FPD cases were done whereas 21% of students admitted that their clinical training was restricted to emergency procedures and denture repairs. 81.5% of the students preferred to do a limited number of clinical cases with PPE and required protection than postponing the clinical training completely until the pandemic is controlled
6. Almost 92.7% of the students felt that a sufficient supply of good quality PPE kits, Provision for Rapid antigen screening within the institution itself, and strict adherence to prudent sterilization and infection control measures are crucial in ensuring occupational safety and good patient care in prosthodontic departments in a pandemic scenario. (Figure 8)
7. In the survey,64.5% of the students agreed and 33.1% strongly agreed that restructuring the practical exam evaluation methods and averting procedures on live patients will be a timely strategy during the time of the pandemic. (Figure 9)
8. When asked to grade their anxiety regarding the impact of Covid 19 on their occupation on a scale of 0-10, 63.7% of the postgraduate students gave a grade of 8-10, out of which 25.8% of students gave a score

of 10. 83.9% of the students pointed out that they were stressed about not being able to meet the required quota of clinical cases.

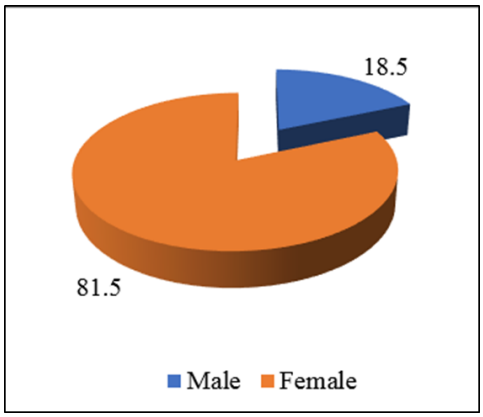

Fig. 1: Percentage distribution of the sample according to gender.

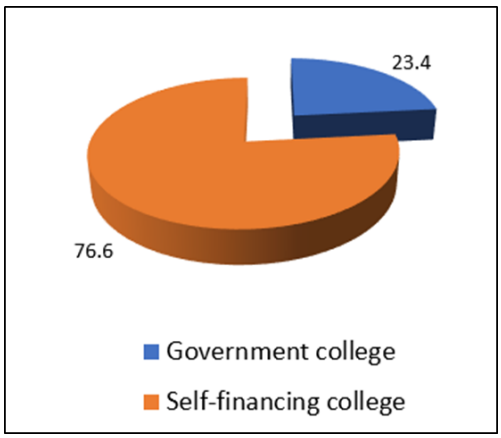

Fig. 2: Percentage distribution of the sample according to type of Institution.

According to 59.7% of the sample population, fear of being a carrier to the family and society was the major cause of anxiety attributed to Covid 19. 32.3% identified Pandemic restricting the clinical training, thus compromising clinical expertise as the major cause of anxiety. 4% marked the fear of being infected as the major cause of concern. Government college students were more concerned about being a carrier of covid 19 to the family, while students in self-financing colleges were anxious regarding the training restriction. (p=.016).

66.9% of prosthodontic postgraduate students felt that covid 19 necessitates revolutionary changes in dentistry and dental education.

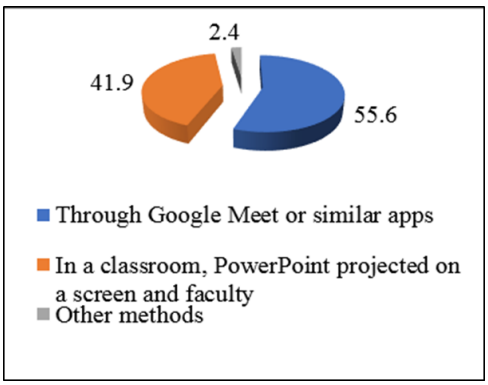

Fig. 3: Percentage distribution of the sample according method used to conduct to academic activities like seminars and journal clubs in department during covid19 pandemic period.

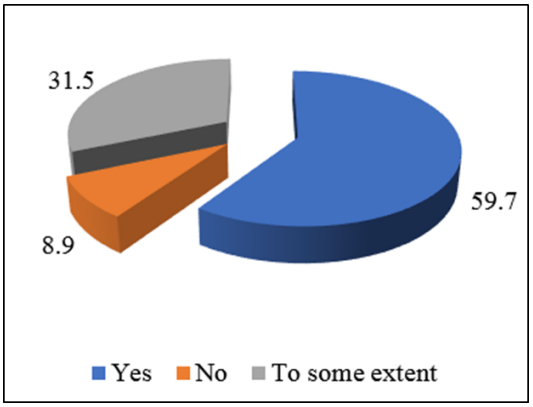

Fig. 4: Percentage distribution of the sample according to experienced internet connectivity problems as a hindrance for carrying out effective academic activities.

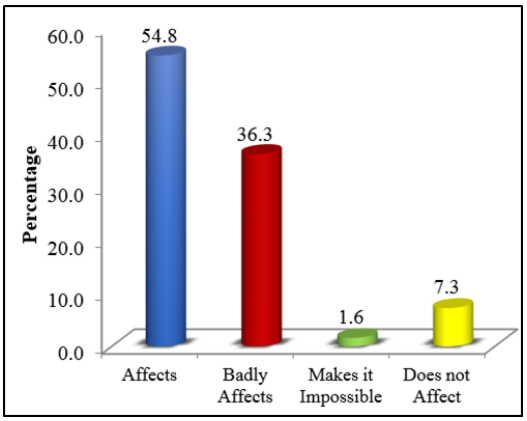

Fig. 5: Percentage distribution of the sample according to the impact on research activities and thesis preparation.

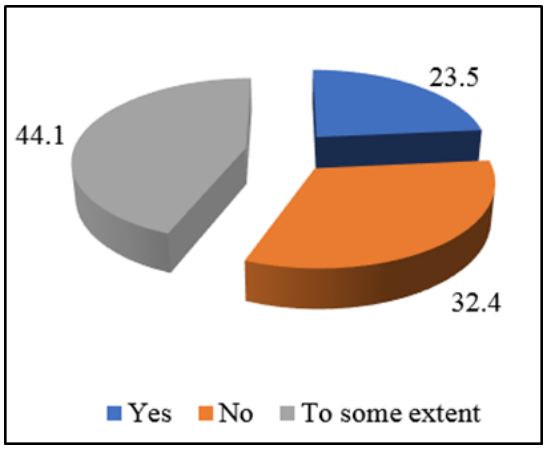

Fig. 6: Percentage of the sample assigned for COVID 19 related duties like swab collection.

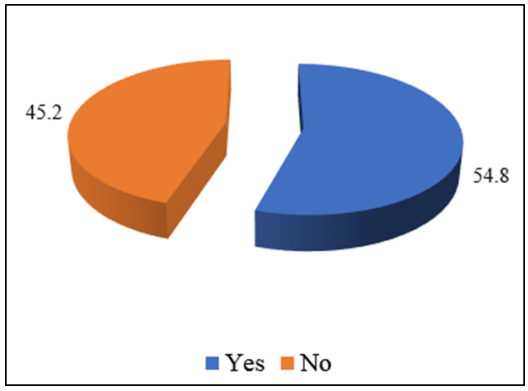

Fig. 7: Percentage of the sample who received proper training in donning and doffing of PPE.

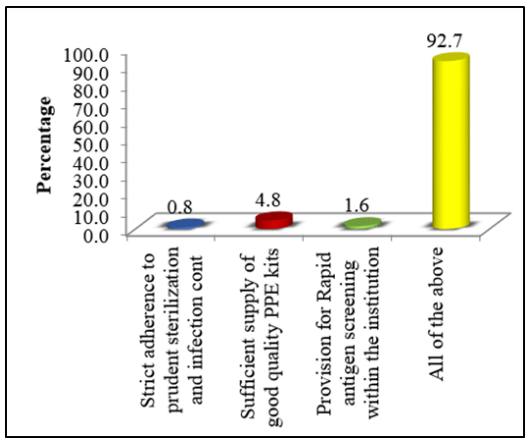

Fig. 8: Steps to be taken for ensuring occupational safety and good patient care in prosthodontic departments in pandemic scenario.

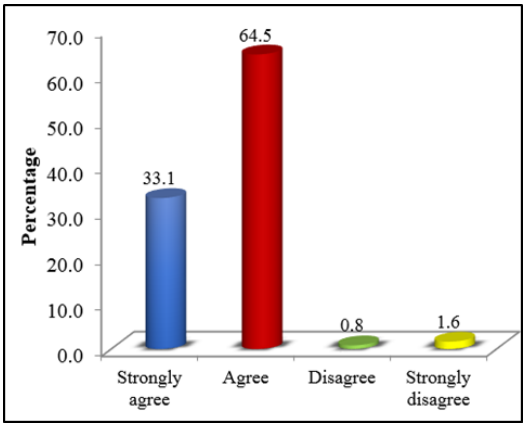

Fig. 9: Opinion regarding restructuring of the practical exam evaluation methods averting procedures on live patients will be a timely strategy during the pandemic.

3.1. Statistics

Categorical variables were expressed as frequency (%). The Chi-square test was used to find an association between categorical variables for all statistical interpretations p value<0.05 was considered the threshold for statistical significance. The statistical analysis was performed by using a statistical software package SPSS version 20.0

4. Discussion

The first case of Covid 19 reported in India was on January 27, 2020, in the southernmost Indian state of Kerala, when a medical student of Wuhan university travelled back to the state.[8] The World Health Organization (WHO) declared the COVID-19 outbreak as a pandemic On 11 March 2020.[9,10] A nationwide lockdown was announced in India on March 24^{th}. Kerala was successful in flattening the covid curve, especially during the first five months of the Covid-19 pandemic.[11,12] An era of uncertainty dawned in the dental education arena worldwide with the onset of the pandemic, which was reflected in the Kerala scenario also.

The study attempts to assess the impact of covid 19 on the academic activities, clinical training, and occupational expectations of postgraduate students of prosthodontic departments in Kerala from October 2020 to December 2020 period. we have 3 government dental colleges and about 15 self-financing dental colleges in Kerala conducting postgraduate courses in prosthodontics.

All around the world, dental education institutions shifted to online education platforms to continue academic activities. ZOOM meetings, Google Classroom, Google meet, Skype, etc, were the most prevalently used online teaching platforms.[13,14] The majority of students perceived conducting seminars, journal clubs, and case discussions on online platforms as a more effective means of continuing dental education than attending webinars or doing self-

study during the pandemic period. But internet connectivity issues remained a major obstacle for most students.[15] As the number of attending students is fewer in post-graduate courses in each batch compared to undergraduate courses, participants opted to conduct teaching activities as PowerPoint presentations on a screen, in a well-ventilated classroom also an equally good option provided social distancing is maintained and safety precautions are taken.

The pandemic and the consequent movement restrictions affected the research activities and thesis preparation of postgraduate students. According to Alzahrani et al suspension of most dental research projects was unavoidable worldwide during the pandemic waves.[16] Dental research focusing on off-campus and electronic study means such as conducting literature surveys and online surveys were more promoted.[17]

Dental professionals, with their knowledge of basic human science and sterile surgical techniques, were invaluable resources during the COVID-19 pandemic times.[18] The postgraduate dental students in Kerala, especially in the Government sector were deployed in the screening of suspected cases in primary health centers and corona first-line treatment centers. The dental fraternity played a crucial role in the early detection of positive cases and was instrumental in flattening the covid curve. 96.6% of government sector students and 42.6% of the self-financing sector were properly trained in donning and doffing PPE. Institutions should take necessary measures for providing proper training to the students and supporting staff in donning and doffing PPE.

Most students perceived that doing a limited number of clinical cases with PPE and all necessary protection was a more practical and sensible option than postponing all clinical procedures until the complete control of the pandemic. In the government sector, clinical training was restricted to emergency procedures, denture repairs, and a limited number of complete-denture and removable partial denture cases, while in the self-financing sector limited cases of complete denture, removable partial denture, and fixed partial denture cases were done. ($p<.01$).

The study revealed increased levels of anxiety regarding the impact of Covid 19 on the dental profession among the participants, This finding was in correlation with many national and international studies.[19–21] Postgraduate students were concerned about whether the pandemic will affect their occupational expectations. Fear of being a carrier to the family and society was a major cause of anxiety. Restricted clinical training due to the pandemic compromising clinical expertise was also a major concern.

Practical examinations involving clinical procedures in patients were a challenge to ensure patient and student safety in the COVID era.[22] In many countries like Canada and United States. The Dental licensure exam pattern was restructured transiting away from live-patient procedures.[23–25] Adopting evaluation methods focusing more on the assessment of clinical judgment and decision-making abilities of students was considered a timely strategy.

A sufficient supply of good quality PPE kits, rapid antigen screening kits in the department itself, and strict adherence to prudent sterilization and infection control measures were crucial in ensuring occupational safety and good patient care in prosthodontic departments.

5. Conclusion

The unprecedented pandemic was a learning curve for all the stakeholders in the dental stream. The pandemic necessitated revolutionary changes in the dental education system. Even though Prosthodontic postgraduate students appeared comfortable with technology adaptations for a didactic curriculum, internet connectivity issues were a major hindrance to the smooth conduction of online academic activities. A sufficient supply of PPEs and antigen test kits in the institution was crucial for the occupational safety of students. Proper training in donning and doffing also should be made mandatory. Restructuring the prosthodontics clinical exams and avoiding long and elaborative clinical procedures should be considered for patient and student safety in pandemic situations. Prudent steps should be taken by the dental education regulatory bodies, and dental colleges so that no pandemic can affect the dental education scenario in the future.

6. Conflict of Interest

None.

7. Source of Funding

None.

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